Multi-Carrier Peak Reduction Using Amplitude Clipping And Phase Rotation

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Abstract:

A hybrid technique for peak-to-average reduction of multi-carrier signals is described. The input to the multi-carrier power amplifier is modified by a hybrid peak-to-average reduction circuit prior to being applied to the amplifier. The hybrid peak-to-average reduction circuit uses two techniques simultaneously. The first technique is amplitude clipping to reduce the peak-to-average ratio. Following the clipping function a phase generator that creates appropriate phase for each carrier is used to further suppress the peak of the multi-carrier signal. The input to the peak-to-average reduction circuit could be a baseband, an intermediate frequency (IF) or radio frequency (RF) signal. The peak-to-average reduction is performed in digital domain.

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